

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

AUG 2 4 15 PM '01

CHIEF CLERK'S OFFICE

SOUTHEASTERN ILLINOIS ELECTRIC)
COOPERATIVE, INC.,)
)
Complainant-Counter Respondent,)
)
vs.) DOCKET NO. 00-0583
)
ILLINOIS POWER COMPANY,)
)
Respondent-Counter Complainant.)

PREPARED REBUTTAL TESTIMONY OF
DAROLD PHILLIPS ON BEHALF OF
SOUTHEASTERN ILLINOIS ELECTRIC COOPERATIVE, INC. (SEIEC)

1 Q: Please state your name.

2 A: Darold Phillips.

3 Q: What is the nature of your occupation and profession?

4 A: I am employed by Ledbetter, Toth and Associates, Inc., Consulting Engineers
5 located in Springfield, Missouri. I am employed as a Principal Electrical
6 Engineer with responsibilities including Administration and in charge of all
7 phases of electrical system work, including planning, power supply,
8 transmission and distribution. In addition I act as a System Engineer
9 responsible on a consultant-client basis for system design and planning,
10 construction work plans, long range system plans, sectionalizing studies,
11 distribution and transmission line design, substation design, load flow studies,

1 work order review, environmental reports, power requirements studies and load
2 forecasting, mapping and all other similar work as needed by our clients.

3 Q: Please state your educational background?

4 A: I hold a high school diploma. I attended the University of Missouri at Rolla
5 from 1968 to 1972 and obtained a Bachelor of Science in Engineering
6 Management with an electrical engineering option. From 1972 to 1976 I
7 attended the University of Missouri at Rolla and received a Master of Science in
8 Engineering Management.

9 Q: Please state your work background and history.

10 A: I was employed for summer work as a Draftsmen and Engineering Assistant
11 with Sho-Me Power Corporation, Marshfield, Missouri between 1969 and 1971.
12 Between 1972 and 1974 I worked as an Engineer Trainee with Sho-Me Power
13 Corporation, Marshfield, Missouri with responsibilities that included wholesale
14 power billing, power requirement studies, planning studies and construction
15 inspection. Between 1974 and 1976 I worked as a System Planning Engineer
16 responsible for planning and load flow studies for a generation and transmission
17 system which included over 100 substations and voltages of 69 kV, 161 kV and
18 345 kV. I also was responsible for planning the distribution system and
19 developed computer programs for analysis of voltage problems with respect to
20 7.2/12.47 kV systems for Sho-Me Power Corporation, Marshfield, Missouri.
21 Between 1977 and 1980 I was Director of Construction Engineering for Sho-Me
22 Power Corporation, Marshfield, Missouri with duties that included

1 administration and responsibility for planning, design and construction of all
2 substations and transmission lines. Projects included lines with voltages of 69
3 kV to 345 kV. From 1980 to 1982 I was the Chief Design and Construction
4 Engineer for Sho-Me Power Corporation, Marshfield, Missouri with
5 responsibilities for administration and was in charge of the planning, design and
6 construction of all distribution and transmission lines and substations. Projects
7 included lines with voltages ranging from 12.47 kV to 345 kV and included
8 supervision of the staff for design, surveying, contract preparation, bid
9 awarding and inspection of contractor's work on all new lines and substations.
10 I have been in my current employment with Ledbetter, Toth and Associates,
11 Inc., Consulting Engineers since 1982.

12 Q: Are you a registered professional engineer in the State of Illinois?

13 A: Yes.

14 Q: What, if any, professional engineering work have you performed for electric
15 utilities in the State of Illinois?

16 A: I perform professional engineering relating to design work, inspection work,
17 construction work plans, long range planning for electric systems, substation
18 design work, load flow studies, work order reviews, power requirement studies,
19 and similar work for nine different rural electric cooperative distribution
20 systems in Illinois and one generation and transmission cooperative in Illinois.

21 Q: Do you perform this work for these electric distribution and generation and
22 transmission systems on a regular basis?

1 A: Yes.

2 Q: Have you reviewed the Direct Testimony of Jason Genovese, an electrical
3 engineer holding the position of Transmission Line Planning Engineer on behalf
4 of Ameren/CIPS and which testimony is filed in this cause as well as a
5 discovery deposition taken by SEIEC of Jason Genovese May 13, 2001 in this
6 case?

7 A: Yes.

8 Q: In addition have you had an opportunity to review SEIEC Exhibit 11 and IP
9 Exhibit 4.2 representing the outage history for the CIPS 69 KV Muddy River
10 transmission line for the period January 1996 through April 23, 2001 and
11 SEIEC Exhibit 12 representing a memorandum of Jason Genovese regarding
12 comments from IP with respect to the CIPS 69 KV Muddy River transmission
13 line?

14 A: Yes.

15 Q: Have you also had an opportunity to review the Direct Testimony of Heath A.
16 Lovell electrical engineer and project manager for the Willow Lake Mine Portal
17 No. 3 construction project and the Direct Testimony of James M. Cummins,
18 General Manager of SEIEC, Dustin Tripp, Manager of Engineering Services
19 for SEIEC and the Direct Testimony of Danny W. Bailey, Vice-President of
20 Surface Operations for Arclar with overall responsibility for the construction of
21 the Willow Lake Mine Portal No. 3, as those testimonies relate to the needs for
22 electrical service by Arclar Company LLC at the Willow Lake Mine Portal No.

1 3?

2 A: Yes.

3 Q: Can you relate in summary format the electrical needs of Arclar Company for
4 use at the Willow Lake Mine Portal No. 3?

5 A: Willow Lake Mine Portal No. 3 requires electrical service from a 69 KV
6 transmission line. In addition the electrical service must have as few as possible
7 outages and the duration of any outages must be less than 15 minutes in order to
8 prevent a mine shut down by Willow Lake Mine Portal No. 3.

9 Q: Have you reviewed the physical facilities represented by the SEIEC 69 KV
10 transmission line that feeds the Equality Substation as well as the Equality
11 Substation facilities themselves and the outage history with respect to those
12 facilities?

13 A: Yes.

14 Q: What did you find?

15 A: I found that the outage record from January 1996 to the present time reflects
16 only two outages at the Equality Substation and on the 69 KV transmission line
17 feeding the same with each outage being less than 15 minutes. I also found that
18 the first one to one and one-half miles of the 69 KV transmission line feeding
19 that substation was constructed in 1961 and the balance of the line was
20 constructed in 1974 and consists of single wood poles with two cross arms each
21 and three conductors each 4/0 ACSR in size and has been maintained in
22 excellent condition. I also found that the poles were tagged as having

1 undergone pole inspection in 1998. In addition, I found that the Equality
2 Substation is fed by two different 69 KV feeds to a motor operated switch
3 located at a point approximately six miles south of the substation. In addition
4 SEIEC'S power supplier can change the direction by which the Equality
5 Substation is fed when necessary because of line interference or outages by
6 utilizing automatic motorized switches operated via a 24 hour dispatch center.
7 This allows very rapid changing of the source of electric energy used to feed the
8 Equality Substation if an outage appears on any portion of the 69 KV
9 transmission line feeding the substation. In addition there are only
10 approximately six miles of 69 KV transmission line feeding into the Equality
11 Substation that do not have access to this dual feed. Therefore there are only 6
12 miles of line that are subject to outages for which there would not be a dual feed
13 and the ability to change the source of electricity in the event of an outage.
14 Also with only 6 miles of transmission line fed by one source, the line that must
15 be patrolled by a utility crew to locate the outage is very short and can be easily
16 determined in order to correct the same thereby limiting the length of any such
17 outage. The amount of investment in these types of facilities by SEIEC'S
18 power supplier enables SEIEC to have fewer outages each with a shorter
19 duration than would be expected on a transmission line with only a single
20 source of electricity.

21 Q: Have you reviewed the outage record for the CIPS 69 KV Muddy River
22 transmission line proposed to be used by IP as a source for electricity to serve

1 the Willow Lake Mine Portal No. 3?

2 A: Yes.

3 Q: Do you have an opinion whether that CIPS 69 KV Muddy River transmission
4 line is adequate to provide the necessary electric service required by the
5 customer Arclar?

6 A: Yes.

7 Q: What is that opinion?

8 A: It is not adequate.

9 Q: Why is it not adequate?

10 A: The outage record over a 5 year period alone reflects too many outages each
11 with a duration longer than allowed by the customer. It reflects the fact that the
12 CIPS 69 KV Muddy River transmission line is only fed from one source that
13 being the west end at the Muddy River transformer. The line has some 29
14 miles of exposure and thus any problems on that transmission line from the
15 Muddy River Substation to the Ohio River will result in an outage. The outage
16 must be found manually and repaired by line crews making it virtually
17 impossible for either CIPS or IP to correct any outage within the requisite 15
18 minute period required by the customer.

19 Q: What, if anything, would CIPS or IP have to do to the CIPS 69 KV Muddy
20 River transmission line to bring it up to a standard of reliability suitable to serve
21 the customer in question?

22 A: It would have to make extensive improvements to the line including providing a

1 second source of electricity to the line at the east end, and 69 KV breakers for
2 automatic switching of the source of electricity depending on the location of the
3 fault on the line. In addition the improvements should include reconductoring
4 the line due to its age.

5 Q: Do you have an estimate as to the cost of providing such improvements?

6 A: The reconductoring alone will cost approximately \$2 million to \$2.5 million.

7 Q: Based upon your experience in dealing with electric utilities and planning
8 transmission lines do you have an opinion whether the present CIPS 69 KV
9 Muddy River Transmission line meets reliability standards acceptable within the
10 industry?

11 A: Yes.

12 Q: What is that opinion.

13 A: The CIPS 69 KV Muddy River transmission line does not meet reliability
14 standards acceptable within the industry.

15 Q: Why not?

16 A: The Rural Utility Service utilizes guidelines under which Rural Electric
17 Cooperatives such as SEIEC operate and which guidelines specify that there
18 should be no more than five hours of outages per customer per year with respect
19 to distribution lines. In addition, based upon my experience in the utility
20 industry a utility experiencing up to five hours of outage time per distribution
21 customer would expect to have no more than one hour of outage time per
22 customer per year that would be attributable to the transmission lines. These

1 guidelines represent maximum outage times rather than minimum outage times
2 and we in the utility industry strive for outage time durations that are less than
3 these guidelines. If a utility experiences outages of the durations indicated by
4 these guidelines, the utility should be taking corrective action. In my
5 experience these guidelines are generally accepted by the utilities I work with
6 and these utilities plan their maintenance, repair and construction of their
7 distribution and transmission lines in order to reduce as much as possible not
8 only the number of outages per customer but the duration of those outages in
9 order to meet these standards. In my system design and planning work on
10 behalf of generation and transmission companies and distribution companies I
11 strive to plan the system so that the outage duration times will meet these
12 guidelines. Whenever a system's outage duration time approaches the
13 maximums established by these general guidelines I am concerned with regard
14 to the reliability of those system lines in meeting the needs of the customers.
15 Invariably systems who have distribution or transmission lines with outages
16 approaching or longer than the above guidelines have a large number of
17 complaints from customers that their service is not what is anticipated.

18 Q: How does the CIPS 69 KV Muddy River transmission line with its outage
19 records compare with the reliability standards that you are accustomed to in
20 your work with other systems?

21 A: It does not meet those reliability standards. There are far too many outages in
22 number as well as duration of time in each of the years 1996 through 2000. As

1 an engineer I would be extremely concerned about the ability of that
2 transmission line to meet the expectations of customers. I would note that
3 Illinois Power Company has complained to CIPS regarding the reliability of this
4 particular line and of the number of irate customers who are served by that line.
5 Based upon my experience in the industry this is to be expected when a line,
6 particularly a transmission line, has the number of outages and duration of such
7 outages that have existed on this line.

Darold Phillips

seiecrebutestphillips.jtelec